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ABSTRACT

Noting that there is a growing body of evidence supporting the many connections between cognitive competence and high-quality pretend play, this article defines the cluster of concepts related to pretend play and cognition, and briefly synthesizes the latest research on the role of such play in children's cognitive, social, and academic development. The article notes that there is growing evidence to suggest that high-quality pretend play is an important facilitator of perspective taking and later abstract thought, that it may facilitate higher-level cognition, and that there are clear links between pretend play and social and linguistic competence. The article also notes that there is still a great need for research on the relationship between high-quality pretend play and development of specific academic skills. The article concludes with a discussion of the challenges and potential policy directions suggested by the research findings. (Contains 44 references.) (Author/HTH)

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Abstract

There is a growing body of evidence supporting the many connections between cognitive competence and high-quality pretend play. This article defines the cluster of concepts related to pretend play and cognition and briefly synthesizes the latest research on the role of such play in children's cognitive, social, and academic development. The article notes that there is a growing body of evidence to suggest that high-quality pretend play is an important facilitator of perspective taking and later abstract thought, that it may facilitate higher-level cognition, and that there are clear links between pretend play and social and linguistic competence. The article also notes that there is still a great need for research on the relationship between high-quality pretend play and development of specific academic skills. The article concludes with a discussion of the challenges and potential policy directions suggested by research findings.

Introduction

Although play has been a well-established curriculum component in early childhood education, the increasing emphasis on accountability appears to have led to a corresponding decline in the general understanding of the important contribution that high-quality play—especially pretend play—can make to children's cognitive development in the early years. This article defines the cluster of concepts related to pretend play and cognition; briefly synthesizes the latest research on the role of such play in children's cognitive, social, and academic development; and discusses the challenges and potential policy directions suggested by these research findings.

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Conceptual Relationships between Pretense and Cognitive Development

Because the development of pretense, receptive and expressive language, and mental representation all begin at approximately the same age (usually between ages 1 and 2), researchers have hypothesized strong conceptual relationships between these processes.

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Pretend play requires the ability to transform objects and actions symbolically; it is furthered by interactive social dialogue and negotiation; and it involves role taking, script knowledge, and improvisation. Many cognitive strategies are exhibited during pretense, such as joint planning, negotiation, problem solving, and goal seeking. A major question of interest to researchers is whether the co-occurrence of these developing abilities is evidence of a reciprocal or a cause-effect relationship—that is, are pretense, language, and cognition all parts of an integrated, reciprocally developing system, or does children's experience with pretense have a causal effect on the development of cognitive and language competencies? Although the answer to this question is still under study, it is clear that pretense plays a vital role in young children's lives and that the period of its salience extends through the primary school years as well (Bergen, 1998). Recently a "cognitive theory of pretense" has been proposed (Nichols & Stich, 2000), which suggests that there is a "separate mental workspace" within the human brain that can explain the phenomenon of pretense. While no research has confirmed this theory, it serves to emphasize how important the play/cognition relationship is for humans and to point toward neuroscience collaboration possibilities in future research on this relationship. It is more likely that pretend play engages many areas of the brain because it involves emotion, cognition, language, and sensorimotor actions, and thus it may promote the development of dense synaptic connections (Bergen & Coscia, 2001).

Recent Research on Pretense and Cognition Relationships

The relationship of pretend play (especially socially interactive pretense) to cognitive development has long been a topic of research interest among educators and psychologists, and a number of studies conducted in the late 1970s and early 1980s supported hypotheses about this relationship. For example, early studies linked play to young children's mathematics readiness (Yawkey, 1981), linguistic/literacy abilities (Pellegrini, 1980), cognitive functioning and impulse control (Saltz, Dixon, & Johnson, 1977), representational competence (Pederson, Rook-Green, & Elder, 1981), and problem-solving skills (Smith & Dutton, 1979). Recent research has explored some cognitive components hypothesized to be strongly related to pretense, such as mental representation ability (i.e., theory of mind), problem solving and other cognitive strategies, social and linguistic competence, and academic skill development.

Theory of Mind Development

The possible relationships between pretense and the development of mental representation (Theory of Mind—TOM) have been studied extensively in the past decade. Derived from the view that pretense involves mental representation (Leslie, 1987) and from study of role-play as a form of perspective taking (Rubin & Howe, 1986), a series of experimental studies using children's understanding of false belief (i.e., inaccurate beliefs held by others) have explored pretense and TOM issues. Lillard (1998) has pointed out that pretense involves "out of play frame" negotiation between players with differing views, simultaneous representation of objects in two ways (real and pretend), role-play requiring acting out others' thoughts and actions, and portrayal of emotions appropriate to varied situations and actors—all of which suggest that pretenders have mental representation abilities. Using experimental versions of false-belief tasks, a number of studies have found that children do not exhibit the ability to recognize false beliefs until about age 4 or 5,

although they engage in object transformation and role taking in pretense at a much earlier age. Lillard suggests that younger children probably see pretend as an action not a mental representation. However, she recently has suggested that pretend play may function for children as a way to create a "Twin Earth" that allows them to participate in and reason about nonactual situations (Lillard, 2001). Most TOM studies have been conducted in laboratory settings, and some researchers have noted that younger children often show understanding of others' thinking and beliefs in their naturally occurring pretend play. Other researchers have used adapted experimental methods to clarify what aspects of TOM younger children may have.

For example, Joseph (1998), in a series of experiments that probed 3- and 4-year-olds' understanding of involuntary behaviors and those performed intentionally during pretend, concluded that 4-year-olds understood intention as a cause of action and that they did represent pretend behaviors mentally, not merely as actions. He asserted that Lillard's questions required more sophisticated reasoning that resulted in an underestimation of children's TOM. Cassidy (1998) found that more children are able to attribute a false belief to an agent when that belief is about something occurring in pretend play but that a "reality bias" influences their ability to respond correctly in nonplay situations. Abu-Akel and Bailey (2001), in a TOM study comparing tasks using indexical language references (e.g., least abstract) to symbolic language references (e.g., requiring abstraction), found that a higher percentage of 4-year-olds were successful in TOM tasks when indexical references were used.

In pretend play situations with parents, Kavanaugh, Eizenman, and Harris (1997) found that children of 2½ show independent agency (making replica persons do pretend actions) and intersubjectivity (having a shared understanding with another in a common activity). Sinclair (1996), using naturalistic examples, asserted that young children's ability to use deception indicates that they have a theory of mind at an earlier age than 4. In a longitudinal study, Jenkins and Astington (2000) observed children's joint planning and role assignments during social pretense and found that their level of TOM predicted the extensiveness of these abilities. They point out that a theory of mind is a gradual acquisition over the age period from 2 to 6. Although children's development of mental representation is an important cognitive achievement needed for academic skills such as reading comprehension and use of mathematical symbols, longitudinal studies exploring relationships between children's pretense, theory of mind, and literacy, mathematical, or other academic skills have not been reported.

This body of theory and research has raised many questions that need further exploration; it does suggest, however, that high-quality pretend play is an important facilitator of perspective taking and later abstract thought.

Problem Solving and Other Cognitive Strategies

A number of researchers have focused on the relationship of play to specific cognitive strategies such as self-regulation, narrative recall, divergent problem solving, and rule understanding. Following Vygotsky (1978), who theorized that young children use private speech in play to regulate their behavior, eventually transforming this private speech into self-regulation through internal thought, Krafft and Berk (1998) compared the private speech of preschool children in Montessori and traditional play-oriented programs and

found that more private speech occurred in the play-oriented setting, especially during pretend play with fantasy characters. They conclude that, at the preschool level, "make-believe play serves as a vital context for the development of self-regulation" (p. 637), contrasting their findings to those of Winsler and Diaz (1995), who found less private speech during unstructured spontaneous play (not focused on pretend play). They suggest that social pretense, which requires children to determine task goals and carry them out, provides more opportunities for self-regulating private speech than do less complex play settings and settings with tasks having predetermined goals and greater teacher direction. Studies of private speech conducted in primary grade settings have typically shown that during tasks, children do use private speech but that it diminishes by third grade as self-regulatory processes are gradually internalized. Probably because of the lack of play opportunities in primary settings, private speech use during pretend play has been studied only at the preschool level, and studies of the transition from private speech in play-oriented to task-oriented situations at the preschool level have not been reported.

In a study designed to explore cognitive change underlying pretend play and understanding of narrative structures, Kim (1999) compared 4- and 5-year-old children in conditions involving pretend play enactment of stories to conditions using storytelling only and found that children in the pretend play conditions used more elaborative narratives and had higher levels of narrative structure. Ability to use narrative is an important emerging literacy skill. Children in the study also had better narrative recall immediately after the pretend enactment and at a later time period when prompted by pictures and doll figures. Although pretend play facilitated recall of the complex narrative structures at the first two time periods, there was no difference in recall at a later time period when no prompts were used, and there was no difference in children's ability to answer encoding and inference questions. The researcher concluded, however, that pretend play did facilitate narrative recall and expression over shorter time periods.

In a meta-analysis, Fisher (1992) indicated that there is a body of evidence showing the effectiveness of play, especially sociodramatic play, in promoting problem-solving abilities. In order to clarify what types of play and problem solving were related and whether these relationships were unidirectional or reciprocal, Wyver and Spence (1999) looked at two types of problem solving (divergent and convergent), two types of divergent problem solving (figural and semantic), and a range of play types and play social levels. In one study (controlling for IQ), they found relationships between thematic pretense and semantic divergent problem solving and between cooperative play and both semantic and figural divergent problem solving. They then gave some children divergent problem-solving training (figural and semantic) and found that there was a significant increase in figural problem-solving ability and in thematic play for the trained group. They gave other children pretend play training (thematic/associative, thematic/cooperative, or cooperative/nonthematic) and found the thematic training groups increased in thematic play and in semantic problem solving, whereas the cooperative play groups increased in cooperative play and on both semantic and figural problem solving. The researchers concluded that there seems to be a reciprocal, rather than a unidirectional, relationship between problem solving and pretend play, with cooperative social play having a more general influence on divergent problem solving and thematic play having a more specific influence on semantic problem solving. They suggest further study of these complex relationships.

In an observational study, Curran (1999) investigated the rule structure used by 3-, 4-, and

5-year-old children in their social pretense. She identified both explicit rules that the children could articulate (e.g., play fair, take a role) and implicit rules that children constructed but usually could not articulate (e.g., engage others, continue the pretend sequence). If rules in the first set were broken, the play stopped, but with the second set, the rules were learned gradually by the less experienced players, and the "master players" tried to channel those less familiar with these rules to keep the play going. Curran suggests that the development of the implicit rules, in particular, requires both divergent thinking and comprehension of rule structure. These are skills required for school success.

This research evidence on problem solving and other cognitive strategies, while not extensive, does point both to implicit and explicit ways that high-quality pretense may facilitate higher-level cognition.

Social and Linguistic Competence

Because pretense involves language use and takes place in social contexts, many studies of pretense include information on social and linguistic competence, which are also vital for school success. In an extensive observational study of pretend play, Sawyer (1997) found that, rather than following a script, much of the preschool children's pretense involved improvisational exchanges and that implicit, in-frame play strategies were more successful than explicit, out-of-frame strategies. He provides rich examples of the skill children exhibit in using improvisation in pretense. The movement to complex social pretense does not occur smoothly for some children, however, as researchers studying the consequences of social or language difficulties on play and cognitive development have observed. For example, Rubin and Coplan (1998) report on a series of studies that followed children who exhibited nonsocial or "withdrawn" play behaviors during preschool; they found that early social withdrawal predicts peer rejection, social anxiety, loneliness, depression, and negative self-esteem in later childhood and adolescence, as well as having negative implications for academic success. The researchers state that in the U.S. culture, social withdrawal may have more negative consequences for boys, but that in cultures where passive, controlled, and reticent behavior is valued (e.g., China), the consequences of this behavior may be different. Gender differences in play may also affect kindergarten adjustment, with boys who have solitary-passive play behaviors and girls who have solitary-active play behaviors being rated as more poorly adjusted by teachers (Coplan, Gavinski-Molina, Lagace-Seguin, & Wichmann, 2001).

The process of play development may also be affected by socioeconomic factors. Observations at two time periods of the play of children participating in Title I preschool programs in 22 classrooms did not show the same increase in social pretense that is typically found over time in most preschool studies (Farran & Son-Yarbrough, 2001). In this study, the play state with the most positive relationship to quantity of verbal behaviors was associative play (in which children interact briefly), but over the two time periods, associative play decreased while parallel play (in which children play along side others but do not interact) increased. This trend was most evident in Title I preschool classrooms enrolling the largest proportion of children from low socioeconomic backgrounds. There was also no increase in the total amount of verbal interaction over the two time periods, a finding that is incongruent with most research. Because increased social pretense and language use were not observed, the researchers express concern that such preschools may "facilitate the behavioral introduction to the expectations of the public school environment

but may not provide the foundational understandings and experiences to keep those early successes from disappearing once the curriculum becomes more demanding" (p. 259).

Researchers studying children who have disabilities have pointed out the importance of social pretense for these children's development and the difficulties such children often have in engaging in social pretense. Odom, McConnell, and Chandler (1993) found that teachers reported that about 75% of children with disabilities need assistance with social skills. However, in a review of research on the symbolic play skills of children with language disabilities, Casby (1997) concluded that their actual differences in symbolic play abilities appear to be quite small; they have "a symbolic *performance* deficit more so than a symbolic *competence* deficit" (p. 477). That is, their capabilities for using symbolic ideas in play may be similar to children without language disabilities. Because of their language problems, however, they are less able to make their pretense themes and roles explicit in their play. Similarly, Guralnik and Hammond (1999) found that children with mild disabilities exhibit play transition patterns (i.e., from solitary to parallel to social) that are congruent with those of typical peers, although the transitions may occur slightly later. On the other hand, the social and pretend play patterns of children with autistic disorders are likely to differ from those of other children either because they lack the mental representation and the language competencies needed for social pretense or because they lack skill in generating novel schemas spontaneously (Jarrold, Boucher, & Smith, 1996). Hestenes and Carroll (2000) observed an inclusive classroom with approximately equal numbers of typically developing children and children with disabilities and found that those without disabilities engaged in more cooperative and less solitary play than did those with disabilities. Although both groups of children chose similar activities, typically developing children interacted less often with children with disabilities than expected. They suggest that, while effects of inclusive settings on play patterns of children with disabilities are not yet clear, such settings do not appear to disrupt the play of typically developing children. Special educators often use play intervention methods such as script rehearsal to promote young children's pretend play abilities, because of the hypothesized relationships between enhanced play skills and enhanced cognitive, social, and language development (Neeley, Neeley, Justen, & Tipton-Sumner, 2001).

In sum, research has shown some clear links between social and linguistic competence and high-quality pretense; thus, engagement in such pretense with peers may assist children's development in these areas.

Academic Skill Development

Numerous studies of literacy skill development through play, which embed literacy materials within play settings in preschool, kindergarten, and multiage programs, have typically shown increases in children's use of literacy materials and engagement in literacy acts (e.g., Christie & Enz, 1992; Einarsdottir, 2000; Neuman & Roskos, 1992; Stone & Christie, 1996). Using such a literacy intervention, Vukelich (1994) found that kindergarten children's ability to read print embedded in the environment was increased. In a longitudinal study, Bergen and Mauer (2000) found that children who had high levels of play with literacy materials in preschool were likely to be spontaneous readers of place signs and have greater pretend verbalizations in a "town-building" activity at age 5. Roskos and Neuman (1998) have pointed out that, although emerging literacy can be enhanced through play, further research comparing the efficacy of play-related literacy

approaches to other methods of increasing literacy skills is still needed, as are longitudinal studies.

Using a strategy similar to the literacy-embedding studies, Cook (2000) enriched preschoolers' pretend play settings with artifacts emphasizing number symbols and found that the children in the math-enriched setting engaged in more talk and activity related to mathematical concepts; however, the effects did not extend to more mature conceptual forms. Although not specifically focused on pretense, a longitudinal study in which preschool children were rated on the complexity of their block play (which has a high symbolic component) and then were followed into their high school years found (controlling for IQ and gender) positive relationships with seventh-grade mathematical test scores and high school measures of math grades, number of math courses, and number of honors courses (Wolfgang, Stannard, & Jones, 2001). The researchers speculate that the reasons no relationships were found with third- and fifth-grade test scores may be because of the "minimum skill and memorization" tests used in those earlier grades, and that when children developed formal operational thought processes by seventh grade, these might build on their early play experiences. They suggest that more researchers engage in "empirical longitudinal research for the positions taken in the support of play learning and curriculum" (p. 174).

There is still a great need for research on the relationship between high-quality pretend play and development of specific academic skills; however, perhaps because the typical school environment does not allow sufficient time for children to engage in extended themes of social pretense, this line of research has not been extensive.

Challenges and Policy Directions Suggested by Recent Research

Although earlier research on play/cognitive development relationships gave some support to play-based curricula in programs for children under age 5, it had little influence on kindergarten and primary schooling practices. More recently, due to state and national emphasis on proficiency test performance, even the small segments of social pretend play time that have been allowed (if not encouraged) in school, such as kindergarten "choice" time and recess breaks, are disappearing. The press for "academic readiness" through concentrated and direct teaching of alphabet, number, color, and other skills is now affecting the amount of time allocated for play in preschools. This trend has had a negative effect on social pretend play, which requires extended uninterrupted time periods to develop complexity. Thus, one major challenge for proponents of such play is to be able to articulate to policy makers how children's development of the types of cognitive skills that are demonstrated in pretense is as important (or even more important) for academic readiness and later school success than memorizing the standard set of information officially targeted as early childhood competencies. Even if play has not yet been demonstrated to be the cause of long-term school success, the evidence is very clear that it is an integrated coexisting component of young children's developmental progress. Further, because most tests now being designed for elementary-age children require strong representational skills, problem-solving abilities, and social-linguistic sophistication, proponents of play must be ready to demonstrate how the development of the cognitive skills exercised in pretend play are also essential for good test performance. Unfortunately, most of the present research evidence has come from small-scale cross-sectional studies that may seem irrelevant to educators and policy makers; therefore the other challenge to

researchers is to mount some more extensive and practice-oriented studies (preferably longitudinal) to investigate play/cognition relationships in diverse early childhood settings. Educators should resist policies that reduce time for social pretend play experiences in preschool and primary grades and work to increase funding for research on play/cognition relationships in early childhood.

In sum, there is a growing body of evidence supporting the many connections between cognitive competence and high-quality pretend play. If children lack opportunities to experience such play, their long-term capacities related to metacognition, problem solving, and social cognition, as well as to academic areas such as literacy, mathematics, and science, may be diminished. These complex and multidimensional skills involving many areas of the brain are most likely to thrive in an atmosphere rich in high-quality pretend play.

References

Abu-Akel, Ahmad, & Bailey, Alison L. (2001). Indexical and symbolic referencing: What role do they play in children's success on theory of mind tasks?*Cognition, 80*(3), 263-281. EJ 630 020.

Bergen, Doris. (1998). Stages of play development. In Doris Bergen (Ed.),*Readings from ... Play as a medium for learning and development* (pp. 71-93). Olney, MD: Association for Childhood Education International. ED 421 252.

Bergen, Doris, & Coscia, Juliet. (2001). *Brain research and childhood education: Implications for educators.* Olney, MD: Association for Childhood Education International.

Bergen, Doris, & Mauer, Daria. (2000). Symbolic play, phonological awareness, and literacy skills at three age levels. In Kathleen A. Roskos & James F. Christie (Eds.), *Play and literacy in early childhood: Research from multiple perspectives* (pp. 45-62). New York: Erlbaum. ED 456 904.

Casby, Michael W. (1997). Symbolic play of children with language impairment: A critical review. *Journal of Speech, Language, and Hearing Research, 40*(3), 468-479. EJ 558 185.

Cassidy, Kimberly Wright. (1998). Preschoolers' use of desires to solve theory of mind problems in a pretense context. *Developmental Psychology, 34*(3), 503-511. EJ 570 732.

Christie, James F., & Enz, Billie. (1992). The effects of literacy play interventions on preschoolers' play patterns and literacy development.*Early Education and Development, 3*(3), 205-220. EJ 447 691.

Cook, Deirdre. (2000). Voice practice: Social and mathematical talk in imaginative play. *Early Child Development and Care, 162,* 51-63. EJ 610 324.

Coplan, Robert J; Gavinski-Molina, Marie Helene; Lagace-Seguin, Daniel G; & Wichmann, Cherami. (2001). When girls versus boys play alone: Nonsocial play and

adjustment in kindergarten. *Developmental Psychology, 37*(4), 464-474.

Curran, Joanne M. (1999). Constraints of pretend play: Implicit and explicit rules. *Journal of Research in Childhood Education, 14*(1), 47-55. EJ 610 268.

Einarsdottir, Johanna. (2000). Incorporating literacy resources into the play curriculum of two Icelandic preschools. In Kathleen A. Roskos & James F. Christie (Eds.), *Play and literacy in early childhood: Research from multiple perspectives* (pp. 77-90). New York: Erlbaum.

Farran, Dale C., & Son-Yarbrough, Whasoup. (2001). Title I funded preschools as a developmental context for children's play and verbal behaviors.*Early Childhood Research Quarterly, 16*(2), 245-262.

Fisher, Edward P. (1992). The impact of play on development: A meta-analysis. *Play and Culture, 5*(2), 159-181.

Guralnik, Michael J., & Hammond, Mary A. (1999). Sequential analysis of the social play of young children with mild developmental delays. *Journal of Early Intervention, 22*(3), 243-256. EJ 623 223.

Hestenes, Linda L., & Carroll, Deborah E. (2000). The play interactions of young children with and without disabilities: Individual and environmental influences. *Early Childhood Research Quarterly, 15*(2), 229-246.

Jarrold, Christopher; Boucher, Jill; & Smith, Peter K. (1996). Generativity deficits in pretend play in autism. *British Journal of Developmental Psychology, 14*(3), 275-300.

Jenkins, Jennifer M., & Astington, Janet Wilde. (2000). Theory of mind and social behavior: Causal models tested in a longitudinal study. *Merrill-Palmer Quarterly, 46*(2), 203-220. EJ 607 001.

Joseph, Robert M. (1998). Intention and knowledge in preschoolers' conception of pretend. *Child Development, 69*(4), 966-980. EJ 572 365.

Kim, Sook-Yi. (1999). The effects of storytelling and pretend play on cognitive processes, short-term and long-term narrative recall. *Child Study Journal, 29*(3), 175-191. EJ 605 419.

Kavanaugh, Robert D.; Eizenman, Dara R.; & Harris, Paul L. (1997). Young children's understanding of pretense expressions of independent agency. *Developmental Psychology, 33*(5), 764-770. EJ 561 705.

Krafft, Kerry C., & Berk, Laura E. (1998). Private speech in two preschools: Significance of open-ended activities and make-believe play for verbal self-regulation. *Early Childhood Research Quarterly, 13*(4), 637-658. EJ 580 317.

Leslie, Alan M. (1987). Pretense and representation: The origins of "theory of mind." *Psychological Review, 94*(4), 412-426.

Lillard, Angeline S. (1998). Playing with a theory of mind. In Olivia N. Saracho & Bernard Spodek (Eds.), *Multiple perspectives on play in early childhood* (pp. 11-33). Albany: State University of New York Press. ED 426 776.

Lillard, Angeline S. (2001). Pretend play as twin earth: A social-cognitive analysis. *Developmental Review, 21*(4), 495-531.

Neeley, Phyllis Miles; Neeley, Richard A.; Justen, Joseph E., III; & Tipton-Sumner, Carla. (2001). Scripted play as a language intervention strategy for preschoolers with developmental disabilities. *Early Childhood Education Journal, 28*(4), 243-246. EJ 631 440.

Neuman, Susan B., & Roskos, Kathy. (1992). Literacy objects as cultural tools: Effects on children's literacy behaviors in play.*Reading Research Quarterly, 27*(3), 202-225. EJ 447 054.

Nichols, Shaun, & Stich, Stephen. (2000). A cognitive theory of pretense. *Cognition, 74*(2), 115-147. EJ 597 814.

Odom, Samuel L.; McConnell, Scott R.; & Chandler, Lynette K. (1993). Acceptability and feasibility of classroom-based social interaction interventions for young children with disabilities. *Exceptional Children, 60*(3), 226-236. EJ 474 393.

Pederson, David R.; Rook-Green, Anne; & Elder, Joy L. (1981). The role of action in the development of pretend play in young children. *Developmental Psychology, 17*(6), 756-759.

Pellegrini, A. D. (1980). The relationship between kindergartners' play and achievement in prereading, language, and writing. *Psychology in the Schools, 17*(4), 530-535. EJ 236 155.

Roskos, Kathleen, & Neuman, Susan. (1998). Play as an opportunity for literacy. In Olivia N. Saracho & Bernard Spodek (Eds.), *Multiple perspectives on play in early childhood* (pp. 100-115). Albany: State University of New York Press. ED 426 776.

Rubin, Kenneth H., & Coplan, Robert J. (1998). Social and nonsocial play in childhood: An individual differences perspective. In Olivia N. Saracho & Bernard Spodek (Eds.), *Multiple perspectives on play in early childhood* (pp. 144-170). Albany: State University of New York Press. ED 426 776.

Rubin, Kenneth H., & Howe, N. (1986). Social play and perspective taking. In G. Fein & M. Rivkin (Eds.), *The young child at play: Reviews of research* (pp. 113-125). Washington, DC: National Association for the Education of Young Children.

Saltz, Eli; Dixon, D.; & Johnson, H. (1977). Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. *Child Development, 48*(2), 367-380. EJ 164 702.

Sawyer, R. Keith. (1997). *Pretend play as improvisation: Conversation in the preschool classroom.* Mahwah, NJ: Erlbaum.

Sinclair, Anne. (1996). Young children's practical deceptions and their understanding of false belief. *New Ideas in Psychology, 14*(2), 152-173.

Smith, Peter K., & Dutton, Susan. (1979). Play and training in direct and innovative problem solving. *Child Development, 50*(3), 830-836. EJ 212 963.

Stone, Sandra J., & Christie, James F. (1996). Collaborative literacy learning during sociodramatic play in a multiage (K-2) primary classroom. *Journal of Research in Childhood Education, 10*(2), 123-133. EJ 524 973.

Vukelich, Carol. (1994). Effects of play interventions on young children's reading of environmental print. *Early Childhood Research Quarterly, 9*(2), 153-170. EJ 493 679.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Michael Cole, Vera John-Steiner, Sylvia Scribner, & Ellen Souberman, Eds. & Trans.). Cambridge, MA: Harvard University Press.

Winsler, Adam, & Diaz, Rafael M. (1995). Private speech in the classroom: The effects of activity type, presence of others, classroom context, and mixed-age grouping. *International Journal of Behavioral Development, 18*(3), 463-487.

Wolfgang, Charles H.; Stannard, Laura L.; & Jones, Ithel. (2001). Block play performance among preschoolers as a predictor of later school achievement in mathematics. *Journal of Research in Childhood Education, 15*(2), 173-180. EJ 629 993.

Wyver, Shirley R., & Spence, Susan H. (1999). Play and divergent problem solving: Evidence supporting a reciprocal relationship. *Early Education and Development, 10*(4), 419-444. EJ 593 718.

Yawkey, Thomas Daniels. (1981). Sociodramatic play effects on mathematical learning and adult ratings of playfulness in five year olds. *Journal of Research and Development in Education, 14*, 30-39.

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